Lead Poisoning in Arizona
Annual Report 2002

Arizona Department of Health Services
Bureau of Epidemiology and Disease Control Services
Office of Environmental Health

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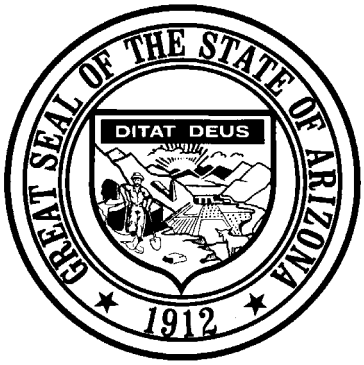

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Executive Summary

The Arizona Department of Health Services maintains the lead exposure registry for Arizona. The program staff develops lead poisoning prevention efforts, investigates cases with elevated blood lead levels, and conducts education and outreach activities. The following items highlight program activities and findings in 2002:

- Laboratories and health care providers reported 239 children with lead poisoning in 2002. Lead poisoning in children is defined as blood lead levels equal to or greater than 10 micrograms of lead per deciliter of blood ($\geq$ 10 µg/dL). Eighty-seven percent (87%) of the childhood cases (209 cases) were in the lower ranges of lead poisoning, 10 to 19 µg/dL. The remaining 30 cases (13%) were in the moderate to severe range of lead poisoning ($\geq$20 µg/dL).

- Laboratories are required to report all blood lead test results. Physicians are required to report elevated blood lead levels ($\geq$10µg/dL for children; $\geq$ 25 µg/dL for adults). A full year of all blood lead testing results was received in 2002. These data provided screening information that was used to identify high risk ZIP codes statewide.

- Non-lead based paint sources continues to be a significant exposure of lead for Arizona's children. The Anti-Lead Campaign continued to warn the public against the use of lead based folk remedies and improperly fired imported pottery. The campaign reached the Arizona/Mexico border and urban areas identified as high risk for lead poisoning.

- The Arizona Department of Health Services and the Childhood Lead Poisoning Screening Coalition developed a Targeted Screening Plan. This policy recommends a geographic targeted lead screening approach that focuses blood lead testing resources on Arizona children who are at higher risk for lead poisoning.

1.0 Lead Surveillance Program Activities

The Arizona Department of Health Services Lead Poisoning Prevention Program develops local lead poisoning prevention programs, maintains the statewide registry for recording all blood lead test results, and conducts education and outreach activities. The program maintains case data for elevated blood lead levels, provides case management including environmental investigations, provides health education, and also provides physician assistance.

2.0 Childhood Lead Poisoning

Childhood lead poisoning is a significant environmental health problem, yet it is entirely preventable. Lead poisoning prevents children from reaching their full potential. Children ages six years old and younger are particularly susceptible to lead poisoning. Ingestion of lead, through hand-to-mouth behavior, is the primary pathway of exposure. Minority children, poor children, and those living in older housing are at higher risk. Lead exposure prevention is key to

ensure declining blood lead levels.

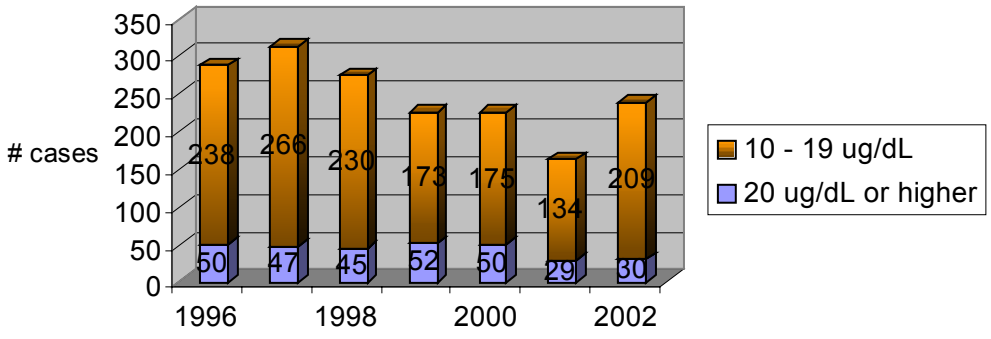
The childhood lead poisoning prevention program provides case follow-up that meets or exceeds the Centers for Disease Control and Prevention 2002 guidelines in "Managing Elevated Blood Lead Levels Among Young Children: Recommendations from the Advisory Committee on Childhood Lead Poisoning Prevention." For lead poisoning cases of 10 to 19 µg/dL, the Arizona Department of Health Services provides prevention counseling to the family by phone and mails educational materials. The physician is also contacted to encourage continued monitoring of the child's blood lead levels until normal. If the family cannot be contacted by telephone or mail, the program refers the case to the health care provider and health plan.

The program performs environmental investigations for cases that are moderate to high in severity, ≥ 20 µg/dL and for persistent levels of 15 to 19 µg/dL. Environmental investigations consist of an in-home interview, environmental sampling to identify lead sources, and specific intervention information for the family. Some county health departments and health plans assist the program with case follow-up. Case management involves contacting the family to ensure proper medical and environmental follow-up. The program provides follow-up information to the case's physician that is essential to clinical management. This information includes source identification and prevention recommendations.

REGISTRY DATA

Laboratories and health care providers reported 239 children with lead poisoning (≥10 µg/dL) in 2002. Figure 1 displays the number of childhood lead poisoning cases for 1996 to 2002. Eighty-seven percent (87%) of the childhood cases (209 cases) were in the lower ranges of lead poisoning (10 to 19 µg/dL). The remaining 30 cases (13%) were in the moderate to severe range of lead poisoning (≥ 20 µg/dL).

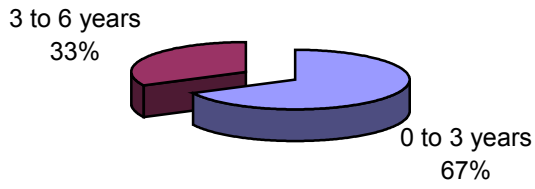
Figure 1
Number of AZ Childhood Lead Poisoning Cases by Year



Prevention program staff contacted 92% of the cases' families by phone, mail, or in-person and provided lead poisoning prevention advice and educational materials. Cases that could not be contacted by any means were referred back to the medical provider and to their health plan.

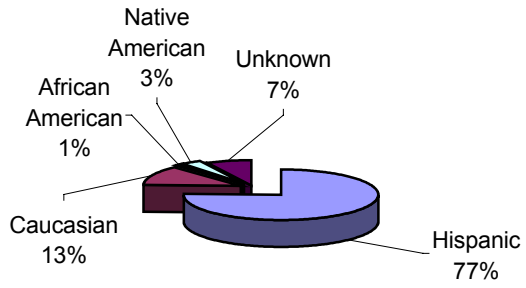
The majority (67%) of the children were aged 0 months to 3 years (Figure 2). Young children engage in hand to mouth behaviors which increases their risk of ingesting lead.

Figure 2
Ages of Children with Lead Poisoning
2002



Approximately 77% of lead poisoning cases were Hispanic (Figure 3). It is not known whether the disproportionate number of Hispanic cases was the result of socioeconomic factors, sampling bias, a random effect, or some unidentified risk factor. The over-representation of Hispanic children persisted in the group of children reported to have blood levels of ≥20 µg/dL.

Figure 3
Child Lead Poisoning Cases by Race/Ethnicity
2002

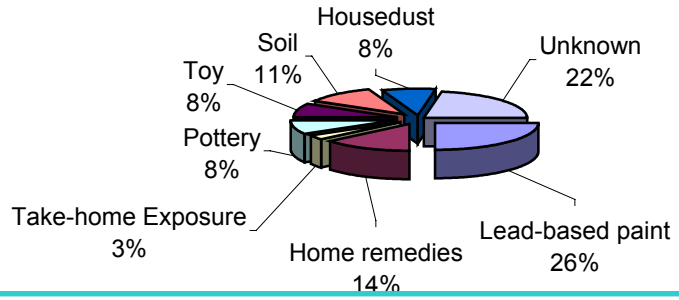


LEAD POISONING SOURCES

Potential sources of lead exposure were identified during investigations of the child's environment for cases with blood lead levels ≥ 20 µg/dL or with persistent blood levels of 15 to 19 µg/dL. Paint, soil, dust and water samples were routinely taken for laboratory analysis. Other sources investigated included home remedies, imported pottery, toys, hobbies and take-home exposures.

Lead-based paint and home remedies were the most frequently identified lead sources. However, imported pottery was an important source of lead exposure in 2002. The distribution of major sources of moderate to severe lead poisoning identified in 2002 is illustrated in Figure 4.

Figure 4
Lead Poisoning Sources for Children with Blood Lead Levels ≥ 20 µg/dL or with Persistent Blood Lead Levels of 15 to 19 µg/dL
2002



Lead glazed pottery and home remedies (azarcon & greta) have been identified as consistent sources of severe lead poisoning.

The Anti-Lead Campaign targeted the Hispanic population along the Arizona/Mexico border and urban Hispanic communities identified as being at increased risk for childhood lead poisoning according to the Targeted Screening Plan. The campaign warns against the use of folk remedies and imported pottery. The campaign included public relations, community outreach, paid and public service announcements and billboards.

3.0 Targeted Screening Plan

The principal federal recommendations on screening young children for lead poisoning are issued by the Centers for Disease Control and Prevention (CDC); the current guidance was published in November 1997 in a document called *Screening Young Children for Lead Poisoning: Guidance for State and Local Public Health Officials.* State health departments and their partners were encouraged to develop formal childhood lead poisoning screening plans that reflect local conditions.

The Arizona Department of Health Services and the Childhood Lead Poisoning Screening Coalition selected a policy that recommends a geographic targeted lead screening approach that focuses blood lead testing resources on Arizona children who are at higher risk for lead poisoning. This plan also supports the Arizona Health Care Cost Containment System (AHCCCS) requirement of testing all enrolled children. Federal law specifically requires lead screening "as appropriate for age and risk factors" for all children enrolled in Medicaid. The screening provision is part of the mandatory package of preventative health services called "Early and Periodic Screening, Diagnostic and Treatment Services" (or EPSDT).

This strategy is intended to ensure that high-risk children are screened, that prevention approaches are appropriate to Arizona, and to reduce unnecessary testing of children unlikely to be exposed to lead. The Arizona Department of Health Services and the Coalition used available lead poisoning prevalence rates and pre-1960 housing data for each ZIP code to develop a Lead Poisoning Risk Index for each ZIP code in Arizona. The plan also supports the state Medicaid program, the Arizona Health Care Cost Containment System (AHCCCS) requirement of testing all enrolled children.

The revised Arizona Childhood lead Poisoning Targeted Screening Plan is currently being implemented. The Plan has been posted on the Department's web site http://www.hs.state.az.us/phs/oeh/invsurv/lead/bklet_home.htm

THE ARIZONA TARGETED SCREENING PLAN

- All children living in targeted ZIP codes should have a blood lead test at 12 and 24 months of age. Children aged 36 to 72 months should be tested if they have not been previously tested.

- All children covered by the Arizona Health Care Cost Containment System (AHCCCS) should be tested according to the Centers for Medicare and Medicaid Services (CMS) requirements, as follows: test all children at 12 and 24 months of age; test children at 36 to 72 months of age if they have not been previously tested.

- For children not living in a targeted ZIP code area, health care providers should conduct an individual risk evaluation in order to determine whether those children are at increased risk of having an elevated blood lead level (BLL).

The following table lists the ZIP codes identified as high risk areas.

APACHE		85006	Phoenix	85639	Topawa
85927	Greer	85007	Phoenix	85701	Tucson
85932	Nutrioso	85008	Phoenix	85705	Tucson
85936	St Johns	85009	Phoenix	85708	Tucson
86507	Lukachukai	85012	Phoenix	85711	Tucson
COCHISE		85013	Phoenix	85713	Tucson
85603	Bisbee	85014	Phoenix	85714	Tucson
85605	Bowie	85015	Phoenix	85716	Tucson
85607	Douglas	85016	Phoenix	85719	Tucson
85608	Douglas	85017	Phoenix	85735	Tucson
85610	Elfrida	85018	Phoenix	**PINAL**	
85613	Ft Huachuca	85019	Phoenix	85228	Coolidge
85617	McNeal	85020	Phoenix	85237	Kearny
85627	Pomerene	85021	Phoenix	85241	Picacho
85630	St David	85031	Phoenix	85245	Red Rock
85638	Tombstone	85032	Phoenix	85272	Stanfield
85643	Willcox	85034	Phoenix	85273	Superior
COCONINO		85040	Phoenix	85623	Oracle
86015	Bellemont	85041	Phoenix	85631	San Manuel
86022	Fredonia	85329	Cashion	**SANTA CRUZ**	
86046	Williams	85353	Tolleson	85611	Elgin
GILA		85354	Tonopah	85621	Nogales
85235	Hayden	85363	Youngtown	85640	Tumacacori
85501	Globe	85390	Wickenburg	**YAVAPAI**	
85539	Miami	**MOHAVE**		85362	Yarnell

GRAHAM		86433	Oatman	86301	Prescott
85531	Central	86437	Valentine	86303	Prescott
85536	Ft Thomas	86438	Yucca	86324	Clarkdale
85543	Pima	**NAVAJO**		86331	Jerome
85546	Safford	86039	Kykotsmovi	86337	Seligman
85552	Thatcher	86042	Polacca	85347	Roll
GREENLEE		86043	2nd Mesa	**YUMA**	
85534	Duncan	86047	Winslow	85533	Dateland
85540	Morenci	**PIMA**		85349	San Luis
85922	Blue	85321	Ajo	85350	Somerton
MARICOPA		85619	Mt Lemmon	85356	Wellton
85003	Phoenix	85633	Sasabe	85364	Yuma
85004	Phoenix	85634	Sells		

4.0 Adult Lead Poisoning

Laboratories and health care providers reported 24 adult cases with blood lead levels ≥25 µg/dL in 2002. The 2002 Arizona adult lead poisoning registry data for cases ≥ 25 µg/dL are summarized in Figure 6.

Adult lead poisoning commonly occurs from exposure to lead used in the workplace. High-risk occupations for adult lead exposure include: manufacturing or recycling of batteries, metals, and ammunition; mining and smelting; radiator and automotive repair; soldering and welding; production of PVC plastic, crystal, ceramics, and glass; remodeling and demolition of older housing and structures; and indoor/outdoor shooting ranges.

Adults also may be exposed to lead in the home through hobbies and through renovation of older homes. Figure 7 displays the sources of adult lead poisoning cases in which occupation was a known risk factor in 2002.

Figure 6
Number of Adult Lead Poisoning Cases ≥ 25 ug/dL by Year
2002

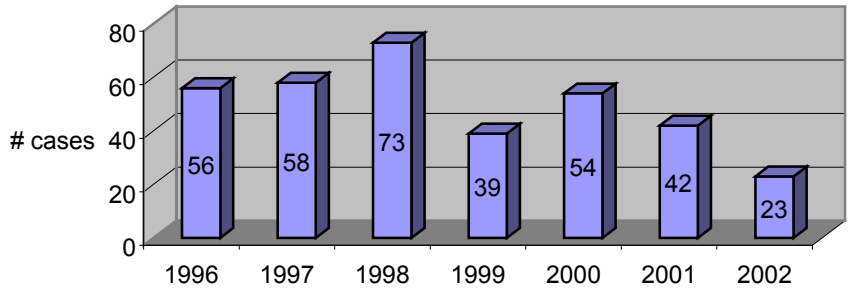


Figure 7
Percent of Adult Lead Poisoning Cases by Occupation
2002